

IN THE SUPREME COURT OF TEXAS

=====
No. 12-1002
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MARCIA FULLER FRENCH, ET AL., PETITIONERS,

v.

OCCIDENTAL PERMIAN LTD., RESPONDENT

=====
ON PETITION FOR REVIEW FROM THE
COURT OF APPEALS FOR THE ELEVENTH DISTRICT OF TEXAS
=====

Argued February 5, 2014

CHIEF JUSTICE HECHT delivered the opinion of the Court.

One method of enhanced oil recovery is to inject carbon dioxide (CO₂) into a reservoir to sweep the oil to the production wells. The CO₂ returns to the surface entrained in casinghead gas — gas produced with the oil.¹ In this case, royalty owners contend that the royalty due on the casinghead gas under the parties' agreements must be determined as if the injected CO₂ were not present, and that they are not required to share with the working interest the expense of removing

¹ “‘Casinghead gas’ is generally defined as ‘[g]as produced with oil in oil wells, the gas being taken from the well through the casinghead at the top of the well, as distinguished from gas produced from a gas well.’” *Railroad Comm’n of Tex. v. Lone Star Gas Co.*, 844 S.W.2d 679, 684 n.5 (Tex. 1992) (quoting 8 H. WILLIAMS & C. MEYERS, OIL AND GAS LAW: MANUAL OF OIL AND GAS TERMS 156 (1991)); *cf.* TEX. NAT. RES. CODE ANN. § 86.002(10) (“‘Casinghead gas’ means any gas or vapor indigenous to an oil stratum and produced from the stratum with oil.”); *Amarillo Oil Co. v. Energy-Agri Prods., Inc.*, 794 S.W.2d 20, 26 (Tex. 1990) (applying statutory definition).

the CO₂ from the gas. We disagree and therefore affirm the judgment of the court of appeals.²

I

A

Petitioners, collectively “French”,³ own the royalty interests under two oil and gas leases in the Cogdell Field, one from the owners of the Fuller Rough Creek Ranch in Scurry and Kent Counties in 1948, and the other from the owners of the Cogdell Ranch in Kent County in 1949. Respondent Occidental Permian Ltd. (“Oxy”) owns the working interest.

The Fuller Lease calls for a royalty “on gas, including casinghead gas or other gaseous substance produced from said land and sold or used off the premises or in the manufacture of gasoline or other product therefrom” equal to “the market value at the well of one-eighth (1/8th) of the gas so sold or used”. The Cogdell Lease calls for a royalty of “1/4 of the net proceeds from the sale” of “gasoline or other products manufactured and sold” from casinghead gas “after deducting [the] cost of manufacturing the same.” Both provisions were standard forms in common use at the time.⁴

² 391 S.W.3d 215 (Tex. App.—Eastland 2012).

³ Petitioners are Marcia Fuller French; Gillian Fuller; Lesa Oudt; French Capital Partners, Ltd.; Connie Delle Cogdell, individually and as trustee of the David M. Courtney Trust, and as trustee of the John Cogdell Courtney Trust; John Courtney, trustee of the Carol C. Courtney Disclaimer Trust; Penny Cogdell Carpenter, individually and as co-independent executor of the estate of William Munsey (“Billy”) Cogdell and as co-trustee of the Cogdell Marital Trust; Billy Rank Cogdell, individually and as co-independent executor of the estate of William Munsey (“Billy”) Cogdell and as co-trustee of the Cogdell Marital Trust; Dick Munsey Cogdell, individually and as co-independent executor of the estate of William Munsey (“Billy”) Cogdell and as co-trustee of the Cogdell Marital Trust; Jim David Cogdell; and Happy State Bank and Trust Company, as trustee for the Martha Ann Cogdell Hospital Trust.

⁴ The market value royalty provision in the Fuller Lease is essentially identical to the provisions we interpreted in *Exxon Corp. v. Middleton*, 613 S.W.2d 240, 241-242 (Tex. 1981) (one lease provided that the royalty “on gas, including casinghead gas or other gaseous substances, produced from said land and sold or used off the premises or in the manufacture of gasoline or other product therefrom, shall be the market value at the well of one-eighth of the gas so

Generally speaking, a royalty is “free of the expenses of production [but] subject to postproduction costs, including . . . treatment costs to render [production] marketable”, but “the parties may modify this general rule by agreement.”⁵ Under the Fuller Lease, the royalty on casinghead gas is based on its market value at the well — “what a willing buyer under no compulsion to buy will pay to a willing seller under no compulsion to sell.”⁶ Since gas is a commodity, its market value at the well does not depend on the individual producer’s costs of bringing the gas to the surface. As a result, the royalty owner does not share in the costs of production. But postproduction processing that makes the gas marketable enhances its value after it leaves the well. The market price of the processed gas reflects the value of the unprocessed gas at the well only if reasonable postproduction processing costs are deducted.⁷ In effect, for gas sold only after processing, the royalty owner shares in those costs, which may vary depending on the

sold or used, provided that on gas so sold at the wells the royalties shall be one-eighth of the amount realized from such sale”). The proceeds provision in the Cogdell Lease is similar to the alternative “amount realized” clause for gas sold at the well in *Middleton*. *Id.*, see also, e.g., *Badger v. King*, 331 S.W.2d 955 (Tex. Civ. App.—El Paso 1959, writ ref’d n.r.e.) (“a royalty of one-eighth (1/8) of the value of natural gas produced from said premises when said gas is sold or used off the premises, or one-eighth (1/8) of the net proceeds of the sale of such gas and a royalty of one-eighth (1/8) of the net amount of gasoline manufactured from natural or casinghead gas”); *Ladd v. Upham*, 58 S.W.2d 1037 (Tex. Civ. App.—Fort Worth 1933), *aff’d*, 95 S.W.2d 365 (Tex. 1936).

⁵ *Heritage Res., Inc. v. NationsBank*, 939 S.W.2d 118, 121-122, 123 (Tex. 1996) (citations omitted). The Court concluded, however, that because the leases set the royalty as a fraction of market value at the well, the commonly accepted meanings of “royalty” and “market value at the well” rendered the leases’ “postproduction” clauses — providing that there shall be no deductions from value of the royalty for, e.g., processing, transportation and marketing costs — surplusage as a matter of law; market value at the well, in the absence of evidence of comparable sales, was established by lessors’ concessions that lessee deducted only reasonable marketing costs from market value at the point of sale. *Id.*

⁶ *Id.* at 125 (Owen, J., concurring) (citing *Exxon Corp. v. Middleton*, 613 S.W.2d at 246); see also *Yzaguirre v. KCS Res., Inc.*, 53 S.W.3d 368, 374 (Tex. 2001) (quoting *Middleton*).

⁷ *Heritage Res., Inc. v. NationsBank*, 939 S.W.2d at 122 (“market value at the well” may be determined by “subtracting reasonable post-production marketing costs” — including the costs of “transporting the gas to the market and processing the gas to make it marketable” — “from the market value at the point of sale”) (citations omitted).

quality of the gas coming from the ground.⁸ Under the Cogdell Lease, the royalty on casinghead gas products is based on the proceeds from their sale, which, again, are unaffected by production expenses, and expressly net of manufacturing — *i.e.*, postproduction — costs. Thus, under both leases, the casinghead gas royalty is net of postproduction expenses but not production expenses. Postproduction, as the word itself implies, ordinarily means *after* production in time, but in this case, the royalty owners contend that the production process does not end at the wellhead. The dispute is over whether certain expenses are properly considered to be production costs or postproduction costs.

In 1954, not long after primary production had begun from the Canyon Reef formation, the leases were pooled to form the Cogdell Canyon Reef Unit (“CCRU”). The purpose, as stated in the Unitization Agreement among the working interest owners and royalty owners, was “to effect secondary recovery operations or pressure maintenance for oil and gas from the Canyon Reef . . . to increase the ultimate recovery of oil therefrom”.⁹ In the Agreement, the royalty owners consented

⁸ See *Freeland v. Sun Oil Co.*, 277 F.2d 154, 159 (5th Cir. 1960) (“The principle is . . . that in determining market value costs which are essential to make a commodity worth anything or worth more must be borne proportionately by those who benefit. To put it another way: in the analytical process of reconstructing a market value where none otherwise exists with sufficient definiteness, all increase in the ultimate sales value attributable to the expenses incurred in transporting and processing the commodity must be deducted. The royalty owner shares only in what is left over, whether stated in terms of cash or an end product. In this sense he bears his proportionate party of that cost, but not because the obligation (or expense) of production rests on him. Rather, it is because that is the way in which [the] law arrives at the value of the gas at the moment it seeks to escape from the wellhead.”).

⁹ Such pooling, which is subject to Railroad Commission approval, had been authorized by the Legislature only five years earlier. Act of May 12, 1949, 51st Leg., R.S., ch. 259, 1949 Tex. Gen. Laws 479 [SB 24], formerly TEX. REV. CIV. STAT. ANN. art. 6008b, now codified as TEX. NAT. RES. CODE §§ 101.011-.018. “The Legislature has made it the policy of this state to encourage secondary recovery of minerals”. *Coastal Oil & Gas Corp. v. Garza Energy Trust*, 268 S.W.3d 1, 46 (Tex. 2008); accord *Railroad Comm’n of Tex. v. Manziel*, 361 S.W.2d 560, 569-570 (Tex. 1962). “Secondary recovery operations are carried on to increase the ultimate recovery of oil and gas, and it is established that pressure maintenance projects will result in more recovery than was obtained by primary methods. It cannot be disputed that such operations should be encouraged, for as the pressure behind the primary production dissipates, the greater is

to the injection of extraneous substances into the oil reservoir and gave the working interest complete discretion in determining whether and how to conduct the operations:

Royalties owners hereby grant unto the working interest owners, at the working interest owners' sole discretion, . . . the right to inject gas, extraneous gas, water, air or other substances, or any combination of two or more of them, in whatever amounts the working interest owners may deem expedient, into the unit area

* * *

The working interest owners shall have full discretion in determining if gas, extraneous gas, air, water or other substances, or any combination of two or more of them, should be injected into the unit area in connection with secondary recovery and pressure maintenance operations. In any event the working interest owners shall be the sole judges of the kind of secondary recovery and pressure maintenance operations which shall be conducted in the unit area

The Agreement defined "gas" as "natural gas (including casinghead gas) and all of its constituent elements produced from wells on lands and leases in the Cogdell Field producing from the Canyon Reef underlying the unit area." Thus, the working interest owners were given discretion to reinject casinghead gas into the field as part of the operations. The parties agreed that no royalty would be paid on such gas:

All unitized substances . . . used in connection with the operation or development of the unit area [or] in injection operations in the unit area . . . shall be deducted before the royalties, overriding royalties and other payments out of production payable to royalty owners hereunder are determined, calculated or paid; and no royalty, overriding royalty or other payment out of production shall be due or payable to any royalty owner hereunder on any unitized substances so . . . used¹⁰

the public necessity for applying secondary recovery forces." *Id.* at 568.

¹⁰ The Agreement added this proviso: "provided, that, notwithstanding the foregoing provisions, if under the laws of the State of Texas any royalty owner is entitled to be paid royalty on oil . . . used in the operation . . . , such royalty shall be paid to said royalty owner under its individual leases in the unit area in accordance with said laws."

“Unitized substances” were defined to include “all oil, gas, . . . or any other substance produced and saved from the Canyon Reef underlying the unit area.”

Finally, the Agreement assigned the cost of the operation to the working interest except to the extent it was already to be borne by the royalty interests:

No part of the costs and expenses incurred in the development and operation of the unit area, including secondary recovery and pressure maintenance costs, shall be charged to any royalty owner unless such royalty owner is already obligated to pay such costs or expenses by the terms of other agreements. Such costs and expenses shall be borne by the working interest owners

The parties’ only other agreements were the leases. Thus, the costs of secondary recovery were not to be charged to the royalty owners except as permitted by the leases — that is, in determining the market value of the gas at the well under the Fuller Lease and the cost of manufacturing casinghead gas products under the Cogdell Lease.

B

The secondary recovery operation in the CCRU involved injecting water into the reservoir to increase and maintain pressure lost through primary production and to sweep oil toward producing wells. The operation has proved very successful. The CCRU has produced more than 270 million barrels of oil and billions of cubic feet of casinghead gas,¹¹ together valued at more than \$1.15 billion, with about half the oil remaining in the reservoir. Waterflooding continues, but by the late 1990s, it had become less effective. Oil production had declined from some 30,000 barrels per day at the peak to about 1,500 barrels per day.

¹¹ The data stated throughout this opinion are as of the time of trial, February 2009.

Since the CCRU was formed, several methods of enhanced oil recovery have been developed, sometimes referred to as tertiary because they typically follow secondary recovery. One is by injecting CO₂ into the reservoir. This increases pressure in the reservoir, just as water injection does. But more importantly, CO₂ is miscible with water and, under high pressure and temperature, with oil. In solution with oil and water, CO₂ can act to reduce oil's viscosity and reduce surface tension, thus easing separation of oil from water in the formation, and improving movement of oil through the formation to the production wellbores. CO₂ flooding requires enormous volumes of CO₂, and supplies are limited and expensive.¹² Special well equipment must also be used to withstand the corrosive properties of CO₂. And the effectiveness of CO₂ flooding is not assured; it depends on the nature of the oil in the ground and the formations in the reservoir. CO₂ flooding is more expensive and riskier than waterflooding.

Oxy began a CO₂ flood in the CCRU in 2001, and it, too, has proved very successful.¹³ The roughly 106 active wells in the unit produce about 5,800 barrels of oil daily. Without the CO₂ flood, oil production would have declined to 200 barrels per day and would no longer have been economically viable, and more than half the oil in the reservoir would have been lost forever.

The wells also produce daily about 140,000 barrels of water, and casinghead gas containing about 110 million cubic feet of CO₂. Separating the oil from the water is relatively simple. The mixture is placed in large storage tanks, where the oil floats on the heavier water and is simply skimmed off. Emulsifiers are added to assist the process. The water is then reinjected into the field.

¹² Oxy pays 66¢/mcf for CO₂.

¹³ The parties do not dispute that the CO₂ flood is permitted and governed by the Unitization Agreement.

The royalty owners have never been charged any part of the expense of this process. The working interest owners have treated the separation of water from oil for reinjection into the field as part of production.

The CO₂ produced with the casinghead gas is also reinjected into the field, along with additional purchased CO₂. More than 10 million cubic feet of casinghead gas per day is simply transported in pipelines from the production wells back to the injection wells and pumped back into the reservoir. As noted above, the Unitization Agreement provides that no royalty is due on such gas, and none is paid. All the casinghead gas could be reinjected the same way, and Oxy considered this possibility in designing the CO₂ flood operation, but the casinghead gas is only about 85% CO₂, and ideally, the injection stream should be more highly concentrated. Also, the hydrocarbon content of the casinghead gas stream not only includes methane (CH₄) but is rich in natural gas liquids (NGLs) — ethane (C₂H₆), propane (C₃H₈), butane (C₄H₁₀), pentane (C₅H₁₂), and natural gasoline (heavier molecules) — which can be extracted and sold. To increase the concentration of CO₂ in the reinjected stream, and to realize the value of the NGLs entrained in the casinghead gas, Oxy elected to process the gas to remove the CO₂ and extract the NGLs.

Before the CO₂ flood, the casinghead gas produced from the field was less than 2% CO₂ and was processed at the Fuller Gasoline Plant to remove other contaminants like hydrogen sulfide (H₂S)¹⁴ and nitrogen (N₂),¹⁵ and to extract NGLs, which were then sold along with the residual gas.

¹⁴ Hydrogen sulfide is a colorless gas with the characteristic foul odor of rotten eggs. It is heavier than air, very poisonous, corrosive, flammable, and explosive.

¹⁵ Nitrogen is a colorless, odorless, relatively inert gas that comprises about 78% of Earth's atmosphere.

The processing was undisputedly a postproduction expense shared by the royalty owners and the working interest. French received royalties based on the value of the NGLs and residual gas net of the processing costs.

But the Fuller plant, like most ordinary gasoline plants, could not process gas that is 85% CO₂. Oxy considered constructing a field refrigeration unit to extract some of the NGLs but ultimately decided to opt for full processing of the casinghead gas. Oxy contracted with Kinder Morgan to build a plant that could process CO₂-laden gas, an investment of millions of dollars. Using Cynara membrane technology, the Kinder Morgan plant removes at least 90% of the CO₂ and most of the H₂S for reinjection, and also extracts some of the NGLs, about two-thirds of the total produced from the gas stream. Kinder Morgan contracts in turn with Torch Energy Marketing to further process the gas at its Snyder Gasoline Plant. There, the rest of the CO₂ and H₂S are removed for reinjection, and the rest of the NGLs are extracted. For its services, Kinder Morgan receives from Oxy a monthly fee of 33¢/mcf of gas delivered to Cynara, plus 30% of the total NGLs in kind and all the residual gas at the tailgate of the Snyder plant. The residual gas is not marketable because of its high nitrogen and low Btu content, but Kinder Morgan uses the gas in its electric generation plant nearby. Kinder Morgan pays Torch a monthly fee, beginning at 25¢/mcf of gas delivered to Snyder and escalating over time. Oxy pays French a royalty on 70% of the NGLs,¹⁶ but not on the 30% given to Kinder Morgan as in-kind compensation, or on any of the residual gas also given as in-kind compensation. Oxy considers the monetary fee paid to Kinder Morgan a production expense

¹⁶ The value of the NGLs produced through this process, from January 2002 through February 2009, is \$226,492,474, 70% of which is \$158,544,732.

and does not charge any part of it to French.¹⁷

C

French sued Oxy for underpaying royalties on casinghead gas since the beginning of the CO₂ flood. French contends that processing the casinghead gas, except for the removal of H₂S and the extraction of NGLs at Snyder, is all part of production that must be borne by Oxy as the working interest owner. This includes the transportation of the casinghead gas from its gathering point to the Cynara plant some 15 miles away, the processing at the Cynara plant, the transportation of the partially processed streams of NGLs and gas to the Snyder plant, the removal of CO₂ there, and the transportation of the permeate streams of CO₂ and H₂S from both plants back to the injection wells. French argues that the extraction of NGLs and removal of H₂S at Cynara are merely incidental byproducts of the removal of CO₂ and thus part of production. French does not contend that the compensation for Kinder Morgan's services is unreasonable, only that it is not a postproduction expense she must share. French asserts that her royalty should be based on the value of 100% of the NGLs net of the expense of extracting them from the gas and removing H₂S, plus the value of the residue gas — or in other words, French claims a royalty based on the value of the native casinghead gas stream that was being processed at the Fuller Plant before the CO₂ flood. Oxy counters that removal of the CO₂ is necessary to make the casinghead gas marketable and is therefore a postproduction expense that must be shared by the royalty owners. Oxy acknowledges that production activities occur at the Cynara plant, but it argues that the monetary fee it pays Kinder

¹⁷ Kinder Morgan's fees total \$85 million.

Morgan, no part of which is charged to French, covers those activities.¹⁸

After a four-day trial to the bench, the trial court agreed with French and awarded her \$10,074,262.33 in underpaid royalties, a declaratory judgment defining Oxy's ongoing royalty obligations consistently with the award, and attorney fees. The court of appeals reversed,¹⁹ focusing on French's damages calculations. It disagreed with French that all the processing at the Cynara plant was part of removing CO₂ and thus a production expense. If nothing else, the court reasoned, the cost of removing H₂S, which French admitted was a postproduction expense at Snyder, was no less a postproduction expense at Cynara, to be subtracted from the value or proceeds of the NGLs in calculating royalties.²⁰ Because French had not proved the amount of that expense, the court concluded, she had not proved the value or proceeds of the NGLs and residue gas on which her royalty should be calculated.²¹ Thus, the court did not reach the issue whether the cost of separating CO₂ from the casinghead gas was a production expense.²²

¹⁸ Kinder Morgan pays a part of the fee to Torch for all processing at the Snyder plant, part of which — the removal of H₂S and extraction of NGLs — French acknowledges is for postproduction activities. Under French's theory, Oxy would be entitled to charge French part of the fee. Oxy makes no such claim.

¹⁹ 391 S.W.3d 215 (Tex. App.—Eastland 2012).

²⁰ *Id.* at 223.

²¹ *Id.*

²² *Id.* at 224. French also claims, and the trial court found, that Oxy's refusal to pay a royalty on the 30% of the NGLs and the residual gas given to Kinder Morgan constituted a breach of the implied covenant to market under the leases. The court of appeals concluded that there is no such covenant in a market value lease, citing *Bowden v. Phillips Petroleum Co.*, 247 S.W.3d 690, 699 (Tex. 2008), and that French had not proved a breach of the covenant in the proceeds lease because she had not proved an underpayment of royalties. Because we hold that Oxy had no such royalty obligation, not merely that French failed to prove a breach, we reach the same result as the court of appeals, though for a different reason.

We granted French's petition for review.²³

II

Royalty owners and working interest owners are, of course, free to agree on what royalty is due, the basis on which it is to be calculated, and how expenses are to be allocated.²⁴ Often, as in this case, agreements contain provisions that are standard throughout the oil and gas industry, provisions that have been judicially interpreted many times over many years. Careful adherence to those interpretations, and consistent application of them, is important to industry stability.

As we have said, all costs of production are generally borne by the working interest,²⁵ and here the Unitization Agreement assigned all costs of the enhanced recovery operations to the working interest “unless [a] royalty owner is already obligated to pay such costs or expenses by the terms of other agreements.” The leases are other agreements in which such an obligation might be found, so we turn to them.

The Fuller Lease provides for a royalty on casinghead gas based on its market value at the well. The only market value evidence in this case is of the NGLs and residue gas at the tailgate of the Snyder plant, after processing is complete. French argues that royalties must be based only on the value of the non-CO₂ gas, the “native” gas, at the well, determined by deducting only the processing costs unrelated to the removal of CO₂ from the value of the final products. The Cogdell

²³ 57 Tex. Sup. Ct. J. 154 (Jan. 15, 2014).

²⁴ *Heritage Res., Inc. v. NationsBank*, 939 S.W.2d 118, 121-122 (Tex. 1996) (“Royalty is commonly defined as the landowner’s share of production, free of expenses of production. Although it is not subject to the costs of production, royalty is usually subject to post-production costs, including taxes, treatment costs to render it marketable, and transportation costs. However, the parties may modify this general rule by agreement.”) (citations omitted).

²⁵ See *Paradigm Oil, Inc. v. Retamco Operating, Inc.*, 372 S.W.3d 177, 180 n.2 (Tex. 2012).

Lease provides for a royalty based on the sales proceeds of casinghead gas products net of the cost of manufacturing them. French argues that that cost does not include the expense of removing CO₂ from the gas. French contends that removing CO₂ for reinjection is part of production, the expense of which is solely that of the working interest. Oxy argues that for both leases, the cost of removing CO₂ is a postproduction expense involved in extracting the NGLs that must be deducted from their market price in determining royalties.

French relies principally on our decision in *Humble Oil & Refining Co. v. West*.²⁶ That case involved a waterdrive natural gas reservoir that was being depleted by production and could be used for storage of extraneous gas but only if that gas were injected before the native gas was completely produced, to prevent water from encroaching into the field and destroying it.²⁷ The royalty owners, the Wests, sued Humble, the owner-operator of the field, to enjoin injection of extraneous gas until all the native gas had been produced.²⁸ We held that Humble had the right to proceed.²⁹ The Wests then argued that all the gas in the field, native and injected, was subject to their royalty interest.³⁰ We disagreed, holding that the injected gas remained Humble's property on which no royalty would be due when such gas was removed from storage, but also that Humble, because it had commingled its injected gas with the native gas, had the burden of showing when production of the pre-injection

²⁶ 508 S.W.2d 812 (Tex. 1974).

²⁷ *Id.* at 813.

²⁸ *Id.* at 813-814.

²⁹ *Id.* at 816.

³⁰ *Id.* at 816-817.

volume of native gas was complete and the royalty obligation extinguished.³¹

Under *West*, the CO₂ injected into the Cogdell Field remains Oxy's property, and French is not entitled to a royalty based on its value when it is produced with the casinghead gas. French argues, correctly, that under *West* she is entitled to a royalty on the value of the non-CO₂ portion of the casinghead gas. But that value is far less while the hydrocarbons and CO₂ are commingled, and whether a royalty owner must share in the cost of separation was not in issue or addressed in *West*. The parties agree that removing contaminants indigenous to the production field, like H₂S, from casinghead gas is not part of production, and the royalty owners must share in the expense. But they have cited no case, and we have found none, involving separation of extraneous substances injected into the field.

French analogizes the process of separating CO₂ injected into the field from the casinghead gas to the process of separating water injected into the field from the oil. Oxy has always treated this oil processing as part of production, charging no part of the expense to French. French argues that the gas processing should be treated the same way. But oil and water are immiscible, and separating them is a relatively simple process compared to separating CO₂ from gas, which requires special technology. More saliently, separating water from oil is essential to continued economic production. The result of waterflooding, which is critical to recovering the oil from the ground, is that an enormous amount of water is produced with the oil — more than 23 barrels of water to one barrel of oil. Separating the water is not only for reinjection into the reservoir; it is necessary to make the

³¹ *Id.* at 818-819.

oil marketable. Without waterflooding and the separation of oil and water, oil production would not be viable. The CO₂ flood is also critical to continued oil production, perhaps even essential, and the result is that the casinghead gas stream is more than 85% CO₂. But separating the CO₂ from the casinghead gas is not necessary for the continued production of oil, which is the purpose of both the waterflood and the CO₂ flood. The gas can be reinjected directly into the field, and some of it is. The gas processing is certainly economically beneficial to French and Oxy. Oxy obtains a concentrated stream of CO₂ for reinjection, and French and Oxy share in the value of the extracted NGLs. But the gas processing is not essential to the operation of the field as the oil processing is.

Not only is it unnecessary for continued oil production to separate the CO₂ from the casinghead gas, Oxy has no obligation to do so. The Unitization Agreement gives it the right to reinject the entire production of casinghead gas into the field, and in developing the CO₂ flood, Oxy considered that option. Had it pursued that course, French would not be entitled to any royalty on the casinghead gas. Instead, Oxy decided to process the gas to obtain a more concentrated stream of CO₂ for reinjection and to extract the NGLs to be marketed. Even so, it actually reinjects more than 10% of the gas produced directly back into the field.³²

In these circumstances, we think that under the parties' agreements, French, having given Oxy the right and discretion to decide whether to reinject or process the casinghead gas, and having benefitted from that decision, must share in the cost of CO₂ removal. Under the Fuller Lease, that cost must be considered in determining the market value of the gas at the well, on which French's

³² We note that Oxy's decision appears to further the State's policy of encouraging full recovery of hydrocarbons and precluding waste. *See* TEX. NAT. RES. CODE §§ 85.045-.047.

royalty is based, and under the Cogdell Lease, it must be included in the cost of manufacturing the NGLs and residue gas. Oxy acknowledges that the gas processing activities aimed at returning CO₂ to the reservoir are part of production and contends that the monetary fee it pays Kinder Morgan, which is not charged to French, covers those expenses. French does not contend that the 30% of NGLs Oxy gives Kinder Morgan in kind overpays for her share of the postproduction expense of CO₂ removal; she argues only that no part of the CO₂ removal is a postproduction expense. Since we disagree, her claim fails.

* * * * *

For these reasons, the judgment of the court of appeals is

Affirmed.

Nathan L. Hecht
Chief Justice

Opinion delivered: June 27, 2014